



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,941	06/08/2001	Rodney Thomas Fox	08291-670001	8400
26211	7590	09/01/2004	EXAMINER	
FISH & RICHARDSON P.C. 45 ROCKEFELLER PLAZA, SUITE 2800 NEW YORK, NY 10111			GOLLAMUDI, SHARMILA S	
			ART UNIT	PAPER NUMBER
			1616	

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/720,941	Applicant(s) FOX ET AL.	
	Examiner Sharmila S. Gollamudi	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1616

DETAILED ACTION

Receipt of Amendments/Remarks received on May 26, 2004 is acknowledged. Claims **1-4, 6-14, and 16** are pending in this application. Claims 5 and 15 stand cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6-7, and 16 are rejected under 35 U.S.C. 103(a) are rejected as being unpatentable over WO 97/28883.

WO teaches a method of precipitating airborne particles by contacting airborne particles with liquid droplets and imparting a charge of +/- .0001 C/Kg using an aerosol device (abstract). The particles treated are within instant range (pg. 9, line 13) and the droplets are in the range of 5-100 microns (claim 5). The liquid composition is a water/hydrocarbon emulsion (pg. 4, lines 1-

Art Unit: 1616

5). WO teaches the properties of the actuator, the diameter of the dip tube, and the characteristics of the valve impart the desired charge on the liquid droplets (pg. 4).

Although, WO does not specify that the invention is for the method of reducing inhalation of airborne particles, it is deemed obvious to one of ordinary skill in the art at the time the invention was made that removing particulates in the air reduces the chance of inhaling the particulates, thereby reducing the inhalation of airborne particles.

Response to Arguments

Applicant argues that WO is concerned with methods for precipitating airborne particles and instant invention claims a method of reducing the inhalation of airborne respirable droplets. Applicant argues there is not disclosure as to the precipitating the liquid droplets.

Applicant's arguments have been fully considered but they are not persuasive.

An argument such as WO's invention does not implicitly perform the method of reducing the inhalation of airborne particles, without evidence to the contrary cannot be given weight. The examiner's inherency argument is based on the fact that WO discloses the same method steps as the instant invention. WO teaches imparting instant charge (+/- .0001 C/Kg) to liquid droplets with instant particle size and droplet diameter via the process of spraying thorough an aerosol device. WO teaches the theory of mutual repulsion on page 1, lines 29-30 as seen in instant method. Therefore, WO's method will implicitly fall within applicant's scope. As seen on page 4 to 5, when the liquid droplet are sprayed from the device, they impart a charge onto the airborne particle causing the airborne particles to precipitate to prevent inhalation. It is implicit that the liquid droplets produced by the device also are not inhaled since it contacts the airborne particle

Art Unit: 1616

and precipitates with the airborne particle. Therefore, the inhalation of the liquid droplets produced by the spray device is also reduced.

In response to applicant's arguments, the recitation "method of reducing the inhalation of airborne particles" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In instant case, the step given weight is "method comprises imparting a unipolar charge on liquid droplets..." Both the prior art and the instant invention impart the same droplets, the same charge, and same particle size/diameter.

Rejection of claims 8-9 and 13 under 35 U.S.C. 103(a) as being unpatentable over WO 97/28883 in view of Grawe (54121897) is maintained.

As set forth above, WO teaches a method of precipitating airborne particles using an emulsion composition in an aerosol device.

WO does not specify the use of a surfactant or a propellant.

Grawe teaches the process of the abatement of contaminants. Grawe teaches the toxicity of airborne particles and the application of a liquid composition to encapsulate the particles for physical removal (col. 6, lines 44-50). The method may be applied via an aerosol spray (col. 6, lines 62). The composition may contain surfactants to stabilize the composition from phase

Art Unit: 1616

separation and lower surface tension (col. 16, lines 32-35). Grawe teaches the inclusion of hydrocarbons for an aerosol device (col. 17, lines 15-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a surfactant to WO's emulsion composition since Grawe teaches the use of surfactants to stabilize emulsions from phase separation. Further, Grawe teaches the use of hydrocarbons (butane or propane) for aerosol devices.

Response to Arguments

Applicant does not specifically address the rejections based on WO in combination with Grawe.

Rejection of claims 8-10 and 13-14 under 35 U.S.C. 103(a) as being unpatentable over WO 97/28883 in view of Kulkarni (5191149) is maintained.

As set forth above, WO teaches a method of precipitating airborne particles using an emulsion composition in an aerosol device.

WO does not specify the use of a surfactant or a propellant.

Kulkarni teaches the state of the art concerning aerosols. The reference teaches the use of pressurized gas of LPGs to spray liquids, which take the form of a mist of small liquid droplets. Aerosols may be used for numerous products such as cleaners, air fresheners, etc. Kulkarni teaches that aerosols contains surface-active agents, stabilizers, solvents, and may contain as much as 90% propellants. (col. 1, lines 5-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings WO and Kulkarni since Kulkarni discloses the state of art concerning aerosols and teaches that aerosol forms usually contain surfactants and propellants to

Art Unit: 1616

function. Therefore, one would be motivated to add the instant propellants and surfactants to formulate an aerosol device as conventionally done in the prior art.

Response to Arguments

Applicant does not specifically address the rejections based on WO in combination with Kulkarni.

Rejection of claims 11-12 under 35 U.S.C. 103(a) as being unpatentable over WO 97/28883 in view of Kulkarni (5191149), in further view of Kalat (4110427) is maintained.

As set forth above, WO teaches a method of precipitating airborne particles using an emulsion composition in an aerosol device. Kulkarni teaches the art of aerosols.

The references do not teach instant surfactants.

Kalat teaches a water-based composition containing a powder and a hydrophobic phase (propellant). Kalat teaches polyglycerol oleate produces a strong water-in-propellant emulsion and is a good corrosion inhibitor if the composition is packaged in a metal container (col. 5, lines 15-21 and examples).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use polyglycerol oleate in WO's composition. One would be motivated to do so since Kalat teaches the instant surfactant produces a strong water-in-propellant emulsion. Therefore, one would be motivated to utilize the instant surfactant in WO' water-propellant emulsion to provide a strong emulsion. Further, since WO's emulsion is packed in an aerosol device which is conventionally a metal container, one would be motivated to use the instant surfactant to prevent corrosion as taught by Kalat.

Response to Arguments

Art Unit: 1616

Applicant does not specifically address the rejections based on WO in combination with Kulkarni and Kalat.

Rejection of claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Malcolm (4541844) in view of Inculet et al (5400975) is maintained.

Malcolm teaches a method of electrostatic particle collection by spraying liquid droplets of 60 microns or less with an electrical charge of .01 coulombs per kilogram (col. 2, lines 40-45 and claim 1). The method removes particulates between .1 and 20 microns (col. 3, lines 4-6). Malcolm teaches a spray tower to apply the liquid droplets (col. 3, lines 10-50). The charged liquid droplets have an enhanced affinity for uncharged smaller particles and operate effectively to collect said particles. See column 3, lines 64-68. Malcolm teaches several methods to charge the liquid droplets, one alternative is a piezo-electric nozzle. See column 3, lines 45-50.

Malcolm's preferred embodiment is directed to charging with an external voltage source. Further, the reference does not teach using an aerosol device to apply the liquid composition.

Inculet et al teach an actuator for electrostatically charging an aerosol spray. Inculet teaches that it is known in the art that the application of an aerosol spray may be enhanced by electrostatically charging the spray as it is dispensed from the nozzle. The spray acquires a charge and is attracted to another oppositely charged body (col. 1, lines 5-33). Further, the reference teaches aerosol dispensers are portable, self-contained, and economical (col. 2, lines 27-30). Inculet discloses prior art attempts to charge spray device fluids using outside sources such as electrodes that supply electric power, etc. See column 2 to column 3. Inculet teaches a spray device that has an actuator that comprises a piezo-electric crystal assembly electrically

Art Unit: 1616

charge the droplets. This invention forgoes the disadvantages of the prior art and is self-contained and portable. See column 3, lines 29-35.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an aerosol device with an actuator to dispense Malcolm's liquid droplet. One would be motivated to do so since Inculet teaches an aerosol spray device containing an actuator with piezo-electric assembly that dispenses an electrostatic charge. Since the critical feature in Malcolm's particle collection is electrically charging the liquid droplets and Inculet teaches electrically the liquid droplets in the device to enhance attraction to another oppositely charged body, one would expect similar results. Further, Malcolm suggests the use of other methods to electrically charge the droplets such as a piezo-electric nozzle, which is taught by Inculet.

Although, Malcolm does not specify that the invention is for the method of reducing inhalation of airborne particles, it is deemed obvious to one of ordinary skill in the art at the time the invention was made that by removing particulates in the air, reduces the chance of inhaling the particulates, thereby reducing the inhalation of airborne particles.

Response to Arguments

Applicant argues that Malcolm teaches external charge-inducing device. Applicant argues that the secondary reference, Inculet, also teach internal or external inducing device. Applicant argues this is contrary to the instant invention wherein the charge is solely imparted by interaction between the liquid and spray device without any charge being imparted thereto from an internal or external inducing device.

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. The examiner points out that applicant recites that the charge is solely imparted by

Art Unit: 1616

interaction between the liquid and spray device. This is exactly what a piezoelectric crystal assembly does. The actuator, which is part of the spray device, contains the piezoelectric crystal. Therefore, Inculet states in column 3, lines 54-57, "By providing an actuator in which charge is induced on the fluid as it is dispensed, the potential requirements may be met with a piezoelectric assembly without the need for external power sources. It should be noted that the actuator is part of conventional spray devices, including applicant's device. In essence, Inculet's device still fulfills applicant's recitation since the assembly is part of the spray device and applicant clearly states that the charge is imparted by an interaction of the liquid and spray device. Furthermore, on page 2 of the instant specification, applicant's states that an internal inducing device such as a battery and clearly Inculet's piezoelectric crystal is not a battery.

Claims 6-10, 13-14, and 16 are rejected 35 U.S.C. 103(a) as being unpatentable over Malcolm (4541844), in view of Inculet et al (5400975), in further view of Kulkarni (5191149).

As set forth above, Malcolm teaches a method of particle collection by spraying liquid droplets of 60 microns or less and an electrical charge of .01 coulombs per kilogram (col. 2, lines 40-45 and claim 1). The method removes particulates between .1 and 20 microns (col. 3, lines 4-6). Inculet teaches the use of aerosol dispensers to electrostatically charge the liquid dispensed.

The references do not teach the hydrocarbons and surfactants in the liquid composition.

Kulkarni teaches the state of the art concerning aerosols. The reference teaches the use of pressurized gas of LPGs to spray liquids, which take the form of a mist of small liquid droplets. Aerosols may be used for numerous products such as cleaners, air fresheners, etc. Kulkarni

Art Unit: 1616

teaches that aerosols contains surface-active agents, stabilizers, solvents, and may contain as much as 90% propellants. (col. 1, lines 5-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings Malcolm, Inculet, and Kulkarni since Kulkarni discloses the state of art concerning aerosols and teaches that aerosol forms usually contain surfactants and propellants to function. Therefore, one would have been motivated to add the instant propellants and surfactants to formulate an aerosol device.

Response to Arguments

Applicant argues the merits of Malcolm in view of Inculet et al and not the instant rejection; therefore the rejection is maintained.

Conclusion

No claims are allowed this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharmila S. Gollamudi whose telephone number is 571-272-0614. The examiner can normally be reached on M-F (8:00-5:30), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on 571-272-0887. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sharmila S. Gollamudi
Examiner
Art Unit 1616

SSG


GARY KUNZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600